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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/899,276	07/06/2001	Frank Roesl	012627-023	3914

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EXAMINER	
ANGELL, JON E	

ART UNIT	PAPER NUMBER
1635	

DATE MAILED: 04/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/899,276	ROESL ET AL.	
	Examiner	Art Unit	
	Jon Eric Angell	1635	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 February 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *7-10,16,18,19,21 and 22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *7-10,16,18,19,21 and 22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 July 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This Action is in response to the communication filed on 2/9/2006.

The amendment filed 2/9/2006 is acknowledged and has been entered.

Claims 7-10, 16, 18, 19 and 22 are currently pending in the application and are addressed herein.

Applicant's arguments are addressed on a per section basis. The text of those sections of Title 35, U.S. Code not included in this Action can be found in a prior Office Action. Any rejections not reiterated in this action have been withdrawn as being obviated by the amendment of the claims and/or applicant's arguments.

Priority

Acknowledgment is made of applicant's claim for foreign priority based on European Patent Application No. 00114560.6, filed on July 6, 2000. It is noted, however, that although a communication filed by Applicants on 10/30/2001 indicates that a certified copy of European Patent Application No. 00114560.6 has been submitted, the certified copy is not present in the scanned file. The Examiner has requested that the Application papers be re-checked for the document; however, the document has yet to be located by the Office. Therefore applicant's are requested to submit a certified copy of the application as required by 35 U.S.C. 119(b).

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it

pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 7-10, 16, 18, 19 and 22 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claims, in general, encompass isolated nucleic acid sequences which encode the monocyte chemoattractant protein-1 (MCP-1). It is noted that claim 16 has been amended to indicate the nucleic acid encodes a protein that has the biological activity of MCP-1; however, claim 16 still encompasses nucleic acid sequences which hybridize to SEQ ID NO: 13 under stringent conditions. Additionally, new claim 22 specifically indicates that the nucleic acid sequence can be an allelic variant of SEQ ID NO: 13 which encodes a protein having the biological activity of MCP-1.

Therefore, the claims are drawn to a genus of molecules (i.e., nucleic acids) wherein the molecules encompass nucleic acid sequences that are different from the disclosed MCP-1 sequence (SEQ ID NO: 13) and includes allelic variant sequences of SEQ ID NO: 13 as well as variant nucleic acid sequences which would hybridize to SEQ ID NO: 13 under stringent conditions. It is noted that the specification defines the term "allelic variant" by stating, "The allelic variants can either be naturally occurring variants or synthetically produces variants or variants produced by recombinant DNA processes" (see page 5, lines 1-5 of the specification). Therefore, the "allelic variants" encompassed by claim 22 include naturally occurring variants as well as synthetic variants. Given the broadest reasonable interpretation, the variants

encompassed by the claims include synthetic variants wherein any number of nucleotides are changed. It is acknowledged that the claims indicate that the isolated nucleic acid molecule encodes a sequence that has MCP-1 biological activity. However, neither the specification nor the prior art disclose the structural elements of MCP-1 which are critical for its biological activity. Accordingly, one of skill in the art would not know which variants would have MCP-1 biological activity and which variants would not have MCP-1 biological activity, without performing additional experimentation.

To provide adequate written description and evidence of possession of a claimed genus, the specification must provide sufficient distinguishing identifying characteristics of the genus. The factors to be considered include disclosure of compete or partial structure, physical and/or chemical properties, functional characteristics, structure/function correlation, methods of making the claimed product, or any combination thereof. In this case, the only factor present in the claim is that the sequence encodes an allelic variant MCP-1 that has the biological activity of MCP-1. There is no identification of any particular portion or domain of the sequence that must be conserved among all members of the genus. Since the specification and prior art do not describe the features of human MCP-1 that are critical to the functional activity of MCP-1 polypeptide, there is no known structure–function relationship for the molecules encompassed by the claims. It is noted that a review of the prior art identified that there are at least two sequence homologues of human MCP-1, one encoding mouse JE and another encoding human JE (e.g., see Rollins et al., MCB 1998; previously cited); however, the sequence structures of these homologues which are critical to conferring the biological activity of MCP-1 to the proteins are not described.

Accordingly, in the absence of sufficient recitation of distinguishing identifying characteristics, the specification does not provide adequate written description of the claimed genus.

Vas-Cath Inc. v. Mahurkar, 19USPQ2d 1111, clearly states "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession *of the invention*. The invention is, for purposes of the 'written description' inquiry, *whatever is now claimed.*" (See page 1117.) The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." (See *Vas-Cath* at page 1116). Here, the skilled artisan cannot envision the detailed chemical structure of the genus of molecules encompassed by the claims, and therefore conception is not achieved until reduction to practice has occurred, regardless of the complexity or simplicity of the method of isolation. Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method of isolating it. The compound itself is required. See *Fiers v. Revel*, 25 USPQ2d 1601 at 1606 (CAFC 1993) and *Amgen Inc. v. Chugai Pharmaceutical Co. Ltd.*, 18 USPQ2d 1016.

Therefore, only isolated nucleic acids encoding the amino acid sequence encoded by SEQ ID NO: 13 meet the written description provision of 35 U.S.C. §112, first paragraph. Applicant is reminded that *Vas-Cath* makes clear that the written description provision of 35 U.S.C. §112 is severable from its enablement provision (see page 1115).

It is noted that claims 7-10, 18 and 19 are dependent claims that depend on claim 16 and encompass all of the limitations of claim 16. Therefore, therefore, claims 7-10, 18 and 19 are rejected for the same reason.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 7-10, 16, 18, 19 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Birren et al. (Genbank Accession No. AC005549; cited by Applicants on the IDS PTO-1449 filed 10/30/2001).

The instant claims are drawn to an isolated nucleic acid molecule "consisting essentially of": (a) a nucleic acid sequence encoding MCP-1 which is the protein encoded by SEQ ID NO: 13, as well as allelic variants thereof or a nucleic acid sequence which hybridizes to the nucleotide sequence of SEQ ID NO: 13 under stringent conditions wherein the encode protein has MCP-1 biological activity; and (b) at least one hypersensitive region selected from the group consisting of SEQ ID NOS: 1-6, 8 or TGATCA.

Regarding the limitation "consisting essentially of" it is noted that MPEP 2111.03 states:

> "The transitional phrase 'consisting essentially of' limits the scope of a claim to the specified materials or steps 'and those that do not materially affect the basic and novel characteristic(s)' of the claimed invention. In re Herz, 537 F.2d 549, 551-52, 190 USPQ 461, 463 (CCPA 1976) (emphasis in original)... For the purposes of searching for and applying prior art under 35 U.S.C. 102 and 103, absent a clear indication in the specification or claims of what the basic and novel characteristics actually are, 'consisting essentially of' will be construed as equivalent to 'comprising' See, e.g., PPG, 156 F.3d at 1355, 48 USPQ2d at 1355 ("PPG could have defined the scope of the phrase consisting essentially of' for purposes of its patent by making clear in its specification what it regarded as constituting a material change in the basic and novel characteristics of

> the invention."). See also AK Steel Corp. v. Sollac, 344 F.3d 1234, 1240-41, 68 USPQ2d 1280, 1283-84 (Fed. Cir. 2003) (Applicant's statement in the specification that 'silicon contents in the coating metal should not exceed about 0.5% by weight' along with a discussion of the deleterious effects of silicon provided basis to conclude that silicon in excess of 0.5% by weight would materially alter the basic and novel properties of the invention. Thus, 'consisting essentially of' as recited in the preamble was interpreted to permit no more than 0.5% by weight of silicon in the aluminum coating.); In re Janakirama-Rao, 317 F.2d 951, 954, 137 USPQ 893, 895-96 (CCPA 1963). If an applicant contends that additional steps or materials in the prior art are excluded by the recitation of 'consisting essentially of,' applicant has the burden of showing that the introduction of additional steps or components would materially change the characteristics of applicant's invention."

Therefore, in the instant case, the claims are interpreted as encompassing a nucleic acid comprising (a) and (b), as indicated above, and any other sequence that does not materially affect the basic and novel characteristics of the claimed nucleic acid.

Birren (Genbank Accession No. AC005549) teaches a bacterial artificial chromosome (BAC) comprising a 147 kb fragment of chromosome 17 which includes SEQ ID NO. 1 as well as a DNA sequence encoding the human MCP-1 gene (SEQ ID NO: 13). The Genbank data indicates that the sequence is comprised in a recombinant BAC vector (hRPK.215_E_13), which includes the genomic sequence encoding human MCP-1 (SEQ ID NO: 13), as well as more than 130kb of human chromosome 17 sequence. Since the sequence taught by Birren is a fragment of human chromosome 17, the sequence taught by Birren other than the sequence of SEQ ID NO: 13 and the indicated DHSRs is not considered to materially effect the basic and novel characteristics of the claimed invention.

Since Birren teaches an isolated nucleic acid sequence having SEQ ID NO. 1 (the 3'DHSR nucleic acid sequence comprising nucleotides from position +2430 to +3019 as depicted in Figure 6) and SEQ ID NO: 13 (human MCP-1), as well as 130kb sequence of human chromosome 17, Birren teaches an isolated nucleic acid sequence comprising (a) and (b), as

indicated above, which would necessarily comprise the regulatory elements of the MCP-1 gene, including the naturally occurring binding sites for transcription factors such as AP-1, Sp1, NF-IL6 or NF-kappa B operatively linked to the human MCP-1 gene which would allow transcription and synthesis of a translatable RNA in a eukaryotic cell. Furthermore, since the additional sequence taught by Birren would not materially affect the basic and novel characteristics of the claimed sequence, the BAC taught by Birren in Genbank Accession No. AC005549 meets the limitations of claim 16.

It is noted that the BAC taught by Birren is a recombinant vector that includes a 147 kilobase part of chromosome 17, which includes the 11kb sequence of SEQ ID NO: 13 (human MCP-1) and which would necessarily include the regulatory sequences associated with the expression of MCP-1 in human cells including the 5'-DHSRs, the 3'-DHSRs as well the MCP-1 promoter sequences associated with the MCP-1 gene. Furthermore, the construction of the BAC would necessarily require the transformation of the BAC into bacterial cells for the propagation of the instant BAC. As such, Birren (through Genbank Accession No. AC005549) necessarily teaches all of the limitations of the instant claims.

Response to Arguments

Applicant's arguments filed 2/9/2006 have been fully considered.

With respect to the certified priority document, it is acknowledged that Applicants have indicated that a certified copy of European Patent Application No. 00114560.6 has been submitted on 10/30/2001. However, the certified copy is not present in the scanned file. The Examiner has requested that the Application papers be re-checked for the document; however,

the document has not yet been located by the Office. Therefore applicant's are requested to submit a certified copy of the application as required by 35 U.S.C. 119(b).

With respect to the objection to claim 16, Applicants arguments, in view of the amendment render the objection moot.

With respect to the rejection of claims under 35 USC 112, 1st paragraph (written description), Applicants argue that the phrase "allelic variants" has been deleted and the claims now indicate that encoded protein has "the biological activity of MCP-1" (see page 4 of the response filed 2/9/06).

In response, the instant claims specifically encompass any nucleic acid sequence which hybridizes to SEQ ID NO:13 under stringent conditions and which encodes a protein having MCP-1 biological activity (see lines 6-7 of claim 16). As previously indicated (see the 8/9/05 Office Action) and as reiterated above, neither the specification nor the prior art disclose the structural elements of MCP-1 which are critical for its biological activity. Accordingly, one of skill in the art would not know which variant nucleic acid sequences which hybridize to SEQ ID NO:13 would encode a protein having MCP-1 biological activity and which variant sequences would not, without performing additional experimentation. the skilled artisan cannot envision the detailed chemical structure of the genus of molecules encompassed by the claims, and therefore conception is not achieved until reduction to practice has occurred, regardless of the complexity or simplicity of the method of isolation. Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method of

isolating it. The compound itself is required. See *Fiers v. Revel*, 25 USPQ2d 1601 at 1606 (CAFC 1993) and *Amgen Inc. v. Chugai Pharmaceutical Co. Ltd.*, 18 USPQ2d 1016. Applicant is reminded that *Vas-Cath* makes clear that the written description provision of 35 U.S.C. §112 is severable from its enablement provision (see page 1115). Additionally, it is respectfully pointed out that new claim 22 explicitly encompasses allelic variant sequences (see lines 4-5 of the claim).

It is noted that the specification has provided sufficient description for isolated nucleic acid sequences encoding the amino acid sequence encoded by SEQ ID NO: 13.

With respect to the rejection of claims under 35 USC 112, 1st paragraph for encompassing non-isolated host cells, the amendment adding the limitations that the host cell is an isolated host cell obviates the rejection. Accordingly, the rejection of claims under 35 USC 112, 1st paragraph for encompassing non-isolated host cells is withdrawn.

With respect to the rejection of claims under 35 USC 102, Applicants argue that Birren et al. describes a bacterial artificial chromosome (BAC) which contains a 147 kb portion of human chromosome 17 wherein there appears to be a nucleotide sequence which has some similarity to SEQ ID NO:13 of the present application. Applicants contend that Birren et al. has no recognition that the BAC contains a nucleotide sequence which encodes MCP-1, or what the proper reading frame might be for any such sequence, or even what strand of the BAC contains a coding sequence for MCP-1. Moreover, Applicants assert, Birren et al. has no recognition as to where there might be any regulatory sequences which affect expression of the MCP-I gene.

Hence, Applicants argue, Birren et al. could not have guided one to the isolated nucleic acid molecule recited by claim 16.

In response, Birren teaches a sequence which comprises SEQ ID NO: 13, and SEQ ID NO: 1, thus meeting the structural limitations of claim 16. Specifically, Birren teaches EMBL Accession No. Y18933 which is SEQ ID NO: 13, as acknowledged in by Applicants (e.g., see page 6-7 of Applicants response filed 5/23/2005 as well as page 3 of the specification). Therefore, the nucleic acid taught by Birren (EMBL Accession No. Y18933, SEQ ID NO: 13) comprises a nucleic acid sequence that encodes a protein having MCP-1 biological activity. Furthermore, the sequence taught by Birren further comprises a nucleic acid sequence that is 100% identical to SEQ ID NO: 1 (a 3'-DHSR, as indicated in claims 16(b), as previously indicated in the 8/9/2005 Office Action). It is noted that Birren teaches a nucleic acid sequence comprising a fragment of human chromosome 17. Therefore, Birren teaches a sequence having all of the structural limitations of the claimed nucleic acid sequence. Whether or not Birren recognizes that the sequence encodes MCP-1 or the proper reading frame or which strand of the BAC contains a coding sequence for MCP-1 or any regulatory sequences which control expression of the MCP-1 gene is irrelevant because Birren clearly teaches a sequence comprising all of the structural limitations of the claims. Since the sequence (i.e., the product) taught by Birren et al. has all of the structural requirements of the claims, the product must, by necessity, have all of the functional properties as well.

Applicants are reminded that MPEP 2112.01 indicates, "Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or

obviousness has been established. In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). 'When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.'"

Here, the Office has shown a sound basis for believing that the products of the claim and the product of Birren are the same.

Applicants also argue that claim 16 is further distinguished over Birren et al. by the recitation of an isolated nucleic acid molecule consisting essentially the recited nucleic acid sequences and that the "consisting essentially of" language excludes subject matter which would materially affect the basic and novel characteristics of the claimed invention. Applicants contend that the nucleic acid molecules recited by claim 16 are used, for example, in a recombinant vector to express the sequences encoding MCP-1 and the sequence taught by Birren et al. would not be expected to be useful for such purposes. Applicants contend that extensive experimentation would have to be performed to determine which areas of the Birren sequence are in an open chromatin configuration and discuss the technical aspects of transcription including RNA polymerase, nucleosomes, chromatin structure, histones, etc. and argue that without such experimentation the claimed hypersensitive sites cannot be deduced from the sequence information provided by Birren et al. nor would the Birren et al. sequence be expected to be useful for expressing MCP-1 thus, Applicants assert, the rejection based on Birren et al. is untenable.

In response, it is acknowledged that claim 16 includes the recitation "consisting essentially of". However, as previously indicated, MPEP 2111.03 states:

> "The transitional phrase 'consisting essentially of' limits the scope of a claim to the specified materials or steps 'and those that do not materially affect the basic and novel characteristic(s)' of the claimed invention. In re Herz, 537 F.2d 549, 551-52, 190 USPQ 461, 463 (CCPA 1976) (emphasis in original)... If an applicant contends that additional steps or materials in the prior art are excluded by the recitation of 'consisting essentially of,' applicant has the burden of showing that the introduction of additional steps or components would materially change the characteristics of applicant's invention." (Emphasis added).

It is respectfully pointed out that the claimed nucleic acid sequence, in its broadest sense, is a nucleic acid sequence "consisting essentially of" a sequence that (a) encodes a protein having MCP-1 biological activity, and (b) has SEQ ID NO: 1 (see claim 16). Birren et al. teaches a sequence that encodes MCP-1 and which also comprises SEQ ID NO:1. Therefore, Birren et al. clearly teaches a sequence comprising the claimed sequences. It is acknowledged that the sequence of Birren et al. also comprises sequences of human chromosome 17 which are different from the claimed sequence. However, the recitation "consisting essentially of" in claim 16 does not exclude the sequence taught by Birren et al. because the additional sequence taught by Birren (i.e., the sequence that is not the MCP-1 gene and its regulatory sequences) would not materially affect the basic and novel characteristics of the claimed nucleic acid sequence because the sequence taught by Birren et al is a sequence that (a) encodes a protein having MCP-1 biological activity, and (b) has SEQ ID NO: 1 regardless of the additional sequence which is also taught by Birren et al.

Applicants arguments that the sequence taught by Birren et al. would not be expected to be useful for expressing MCP-1 protein and that extensive experimentation would be required to determine which areas of are in open chromatin configuration is not persuasive because the sequence taught by Birren et al. comprises all of the critical structural elements of the claimed sequence; therefore, the claimed sequence and the sequence taught by Birren et al. must, by

necessity, have all of the same functional properties as well (See MPEP 2112.01, as indicated above) regardless of whether or not the sequence was "expected" to express the encoded protein.

Therefore, Applicants arguments are not persuasive and the rejection is not persuasive.

Conclusion

No claim is allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jon Eric Angell whose telephone number is 571-272-0756. The examiner can normally be reached on Mon-Fri, with every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Wang can be reached on 571-272-0811. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JON ANGELL
PATENT EXAMINER